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ABSTRACT

The nuclear debate is one of critical importance and should be explored as part of the school curriculum. The psychology of denying the issue of nuclear arms and the psychological effects of the arms race on children is examined in this paper. A number of topics that might be included in discussion of nuclear issues are the arms race, politics, superpowers, and disarmament. Fundamental concepts for teaching about nuclear weapons include: (1) the possible destruction of the planet; (2) the destructive capacity of nuclear weapons; (3) nuclear security as more than military security; (4) understanding deterrence; (5) the global scope of the problem; and (6) alternative policies. Students should be exposed to the major debates and viewpoints concerning defense and deterrence, and this may be done through government and community resources. Teachers must be aware of the obstacles to teaching about nuclear issues such as dealing with fear and prejudice, and children's fears concerning nuclear issues should be addressed. A list of key resources for teaching about nuclear issues is included. (SM)

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TEACHING NUCLEAR ISSUES

Dr David Hicks

Occasional Paper No 10
Centre for Peace Studies

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1. QUESTIONS ARISING

This paper is based on the assumption that the nuclear debate, both globally and within Britain, is one of critical importance in the late twentieth century and that it should therefore, at some juncture, be explored as part of the school curriculum. An essential part of 'good education' in a democratic society is to teach young people how to think about such an issue, but not what to think about it. The latter route, of course, leads to indoctrination rather than education.

This paper, therefore, attempts to set out some of the key issues and dilemmas in relation to what we may call 'nuclear education.' It perhaps asks more questions than it gives answers, but they are all essential questions which teachers must ask themselves if they are to teach sensitively about these matters. Some of these questions are:

- What does the term 'nuclear issues' embrace?
- What do young people feel about such issues?
- How and where in the curriculum might these issues be looked at?
- What suggestions are educators making about nuclear education?
- What are some of the materials available to teachers?
- What are the different teaching approaches that might be used in the classroom?
- What are some of the consequent dilemmas raised for teachers?

Educational rationale

The question of whether or not one should teach about nuclear issues in school should not be considered in isolation. It needs to be set in the appropriate broader context of teaching about any controversial issues in school. Fortunately there is a general consensus that in a democratic society controversial issues should be looked at, and the debate is more often about how, when and where in the curriculum this should occur.

Sir Keith Joseph, when Secretary of State for Education, argued that "important issues of the day" should be taught about in school by teachers. Their:

> presentation needs to be as objective as it can be

made, in the sense that he or she ensures that what is offered as a fact is indeed true; that the selection of facts gives a picture which is neither unbalanced nor superficial; that facts and opinions are clearly separated; and that the pupils are encouraged to weigh evidence and argument so as to arrive at rational judgements.

And that:

> If asked by pupils for their own views teachers should, as appropriate, declare where they as individuals stand, but explain at the same time that others, in particular the pupils' parents and other teachers, may disagree with them. The teacher should explain that such disagreements are legitimate given the complexity and value-laden nature of the issues and that the pupils too need to weigh the evidence and considerations for themselves and try to reach their own opinions, respecting as they do so the possible contrary opinions of others.[1]

These sentiments have subsequently been formalised in a draft statement from the DES on how to approach teaching about politically controversial issues in school. [2]

John Slater HMI has recently argued that "the question is not whether controversial issues should be part of a school curriculum but when, how and with what resources they should be tackled." Also that:

> The object of discussing controversial issues cannot be to give young people a complete understanding or knowledge of them. None of us has this. If truth cannot be established at least untruth can be avoided. If understanding is not complete at least misunderstanding can be lessened. If we cannot know everything at least we can be less ignorant.
>
> Controversial issues can appear in the curriculum of children from the age of five. They are neither subject nor phase specific.[3]

A useful source for teachers in this context is Robert Stradling's Teaching Controversial Issues. In this controversial

issues are defined as "those problems and disputes which divide society and for which significant groups within society offer conflicting explanations and solutions based on alternative values."[4] A rationale is set out for their inclusion in the curriculum and three broad strategies (balance; neutrality; commitment) are looked at in relation to the role of the teacher.

Clearly the nuclear debate is one such controversial issue which teachers may wish to address with young people. For some the fact that it is a significant contemporary issue will be enough to justify its inclusion in the curriculum. Other justifications sometimes offered by teachers include: the need to state clearly the government's view on defence and deterrence; that perhaps more than any other issue, nuclear war is a threat to human survival itself; that education may have a key role to play in averting nuclear war; that young people are duly/unduly worried about the nuclear threat and they need to discuss this with adults.

It is also important to recall, as John Slater HMI has commented that some issues as well as being controversial may be politically sensitive too. Questions of defence and deterrence are a case in point. It is therefore important to note the political location of those who would eschew this debate in schools. Most critics of education for peace, for example, are generally located on the political Right and condemn teaching about nuclear issues not, it would appear, because they do not feel that the debate is an important one but because they fear that viewpoints other than their own might be offered to students.

Obviously teachers may have their own biases: conservatives may wish to stress the government's perspective on nuclear deterrence; liberals may wish to stress the need to understand and weigh up the differing arguments and perspectives on defence; radicals may wish to stress the urgent need for disarmament. Whatever their personal interest, the clear task of teachers as professionals, is to present students with a variety of viewpoints as they would be argued by the proponents themselves. Anything less than this could be construed as indoctrination rather than education.

There is, of course, also some confusion about the extent to which nuclear issues are already being taught about in

schools. Critics such as Marks, for example, argue that education for peace is really only about nuclear disarmament and that this is being taught about in an extremely unbalanced and biased way which is increasingly threatening the objectivity of the traditional curriculum.[5]

On the other hand Patricia White suggests that it is unlikely that nuclear issues are looked at in either moral education, political education or peace education. "That despite all the clamour made about peace education in schools, particularly by politicians, there is actually very little done in the complex field of nuclear issues." [6] Similarly one American source argues that:

> Forty years have passed since the first use of nuclear weapons. Yet during most of those years, U.S. classrooms and textbooks, across disciplines and institutions, have been filled with silence on the meaning of that event and on the threat posed by ever more modern and destructive weapons. [7]

A survey by Carole Hahn reported that "it is the impression of social studies consultants...that (only) from 'a few' to 'some' social studies teachers teach about nuclear arms issues,"[8] whilst Dan Fleming's investigations of U.S. History textbooks also found an apparent lack of interest in these issues.[9]

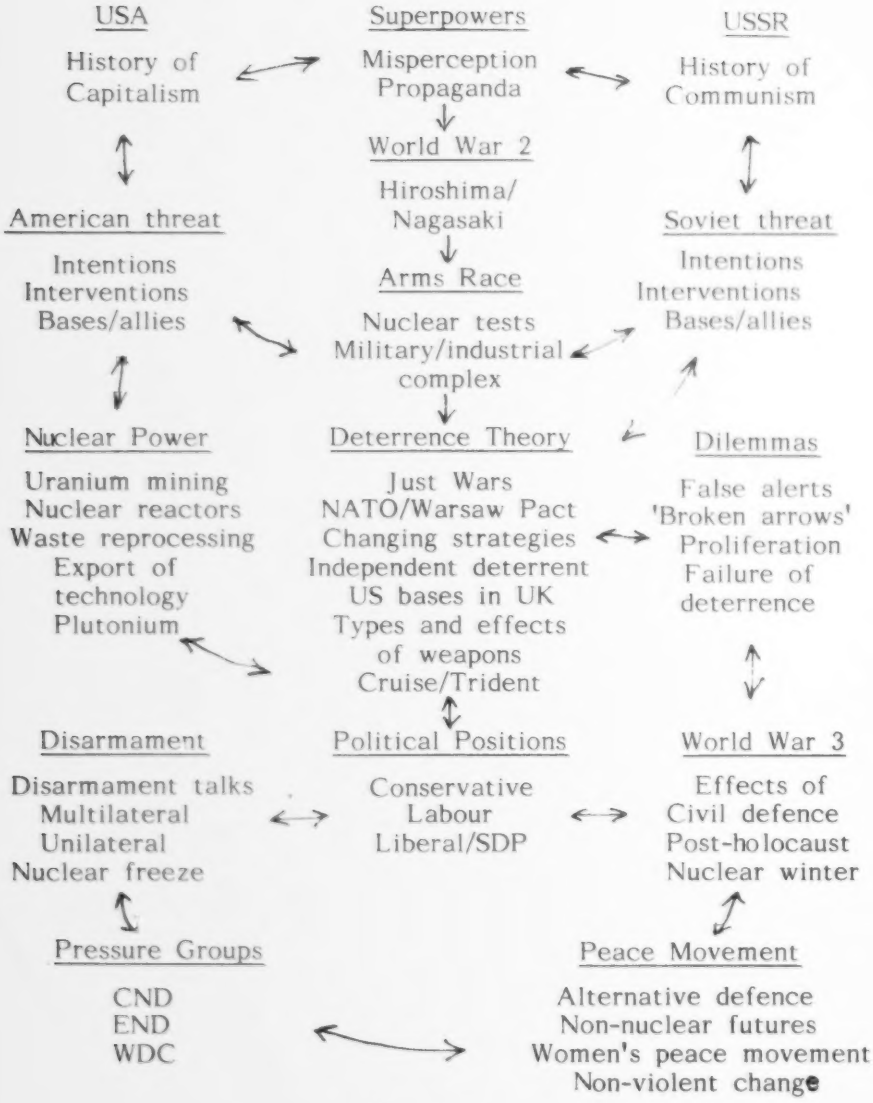
Which nuclear issues?

Whilst the title of this paper might seem to imply that there is some clear cut agreement about what the term 'nuclear issues' embraces, people use the term to convey a range of concerns. Thus educators and others may mean just one of the suggestions listed below, or several in combination. They range from simply giving basic information about nuclear weapons to a consideration of contemporary global politics, from examining the rationale for nuclear deterrence to the ramifications of the nuclear fuel cycle.

i) basic information about the nature and effects of nuclear weapons;
ii) understanding arguments about defence and deterrence;
iii) looking at issues of multilateral and unilateral nuclear disarmament including non-nuclear defence options;
iv) exploring the history of the arms race and the nature of superpower relations today;

Figure 1

NUCLEAR ISSUES: AN OUTLINE MAP



v) setting the above in the context of global politics and economics;
vi) looking at the debate about nuclear power and its links with military matters;
vii) examining the rise and fall of peace movements in different countries of the world.

Figure 1 is an initial attempt to provide an outline map of the issues. It clearly shows their complexity and may appear rather daunting. It is a reminder however of the range of themes that may be embraced under the heading of 'nuclear issues.' Teachers will need to make their own selection from it based on the curriculum context, interest, age and experience of their students. The 'map' is also obviously incomplete. It needs adding to, rearranging, drawing again and improving.

Figure 2 is derived from this and is a ranking activity that can be used with a group of teachers or students to clarify their own priorities for the classroom over nuclear education. The nine paragraphs need to be available on separate slips of paper and teachers work in pairs each with a set of nine slips. The task is to diamond rank the slips in order of priority i.e. the most important topics are at the top, the least important, or those that are to be rejected, at the bottom. Since teachers often argue that for older pupils all of the topics should be included, an alternative is to arrange them in a flowchart to illustrate a particular sequence of work in the classroom. (See * bottom page 8)

The central dilemma

In wanting to teach about nuclear issues, or indeed in just thinking about them, it has to be acknowledged that we are dealing with a problem which is both qualitatively and quantitatively different from any other. Accordingly there may be much debate about the likelihood of nuclear war, there is at least some agreement about the effects of nuclear weapons on people and on the environment. Thus whilst critics may attack films such as Threads and The Day After as unnecessary scaremongering, they do nevertheless attempt to portray what a post-holocaust society might be like. They confront us with the uncomfortable task of visualising the unthinkable.

Figure 2

DISCUSSING NUCLEAR ISSUES

1. Arms race

   Students are learning about the arms race both conventional and nuclear. They are looking at how this has developed and its global impact, at questions of proliferation as well as East-West tensions.

2. Politics

   Students are studying the positions and perspectives of the main political parties on matters to do with defence and deterrence. They are then comparing these with the arguments put forward by the main pressure groups.

3. Effects

   Students are considering the different sorts of damage caused by nuclear weapons on people and on the environment. They are doing this for towns in their own country as well as on a global scale.

4. Military bases

   Students are looking at the location of both Soviet and American military bases in different countries and their various functions. They are weighing up the arguments both for and against their continued presence in terms of national security needs.

5. Superpowers

   Students are examining the perceptions, misperceptions and stereotypes that the USA, USSR and their allies have of each other. They are considering the extent to which a need for 'images of the enemy' helps to fuel the arms race.

6. Disarmament

   Students are evaluating the various arguments for and against nuclear disarmament both multilateral and unilateral. They are also learning about non-nuclear defence options.

7. Hiroshima

   Students are examining the events which led up to the bombing of Hiroshima and Nagasaki in 1945. They are studying both the immediate and longterm effects on Japan and on the world.

8. Nuclear tests

Students are looking at the effects of nuclear tests on the environment both local and further afield. They are also considering the long-term effects on people in, for example, North America and Australia.

9. Nuclear power

Students are exploring the links in the nuclear fuel cycle: from uranium mining, enrichment and nuclear reactors to reprocessing, waste storage and the use of plutonium for weapons. In particular they focus on local and national examples.

Lifton describes the central dilemma thus:

> It is a fact of the greatest absurdity that we human beings threaten to exterminate ourselves with our own genocidal technology. One must never lose that sense of absurdity, the madness, the insanity of it. In fact, all work in nuclear areas has to combine a sense of that absurdity with a pragmatic everyday struggle to do something about it. This struggle begins with our confronting the issue of what the bomb does to our minds and our mental ecology, and that includes the terrible questions of the bomb's ability to impair our capacity to confront it.[10]

Nicholas Humphrey also describes this general numbing of the mind when he writes about the 'psychology of denial'.[11] He identifies five defence mechanisms that people use in order to save themselves from the pain of directly confronting the possibility of their nuclear extinction. They are shown in summary form in Figure 3.

---

*In diamond ranking the slips are laid out as follows:

```
    1
  2   2
3   3   3
  4   4
    5
```

This is easier than trying to rank from 1 to 9 and allows some clustering, whilst being clear about first and last choices.

Figure 3

THE PSYCHOLOGY OF DENIAL

1. Incomprehension

   The scale of nuclear weapons is not really comprehensible; the facts are more than the human mind can grasp: the effects, the consequences; that, for example, the nuclear stockpile today is 5,000 times the total destructive power used in World War Two.

2. Denial

   It is too painful to face up to the truth about the possibility of nuclear war; consciously or subconsciously we choose to be blind, it is better not to think about it; optimism is better and to be preferred; the British habit of not taking things too seriously.

3. Embarrassment

   Nuclear issues and their possible consequences are not nice; it is best therefore to avoid plain speaking; and speaking the truth to people who do not want to hear it is often considered an aggressive act in itself.

4. Helplessness

   And then there is the dreadful feeling that there is nothing at all that we can do anyway; feelings of total powerlessness; that our destinies are controlled by forces out of our control.

5. Strangelove syndrome

   For some there may be a stange attachment to the technology of destruction itself; mesmerised by the power of extinction; accepting the death of others but not the inevitability of their own also.

All these can of course be used as reasons for not teaching about nuclear issues too. Mary Midgley writes "the trouble is not that people are not alarmed. It is that they cannot relate their alarm effectively either to thought or action."[12]

It is also implausible, she suggests, to "hope to educate children on a topic without first clearing up one's own attitudes to it."

The central dilemma is therefore that of the potential or actual effects of 'nuclear numbing' on both teachers and pupils. The possible difficulties highlighted here must be taken into account when we consider both various teaching strategies and different teaching materials. We also, of course, need to be aware of what young people themselves are thinking and feeling about nuclear issues.

What young people feel

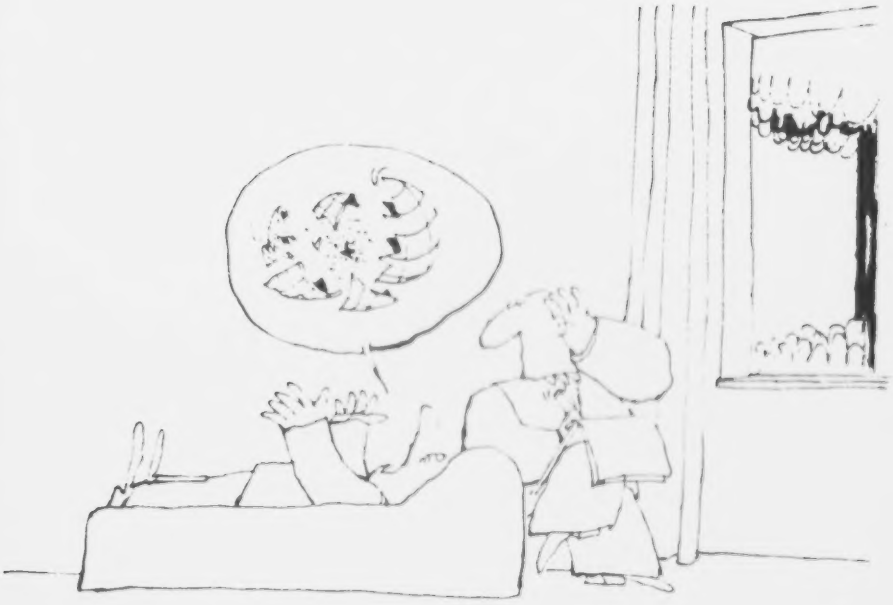
Whilst more research is still needed on what young people think and feel about the threat of nuclear war, it is possible to make some tentative generalisations from the work that has been done so far. Educators for Social Responsibility, in a review of the research, suggested the following psychological effects on children.[13]

Figure 4

PSYCHOLOGICAL EFFECTS OF THE ARMS RACE

1. By the end of the primary school most children are aware of the nuclear arms race in one way or another, including via the influence of the media.
2. As a result some children may feel betrayed by adults who, they feel, have allowed the possibility of nuclear war to come about.
3. It is adolescents who often feel they have most to lose because they are beginning to think about their personal futures and yet are faced by images of extinction.
4. It is possible that this uncertainty about the future can, in some young people, affect normal developmental processes i.e. it may result in a 'live for today' philosophy and a turning away from adult authority.

A useful overview of the original studies carried out by psychologists and other researchers have been compiled by Ruth Davies.[14] She identifies two main emphases amongst



researchers: those interested in what children know about war and peace; and those with an interest in what children feel about the threat of nuclear war. Investigations under the first category suggest that children's ability to think about issues of war and peace often lags behind their general cognitive development and that their images of war are much clearer than those of peace.

Investigations under the second category have been both open-ended, in terms of waiting to see whether children mention nuclear war as a fear or not, and also direct in specifically asking children their feelings about this. Research findings are drawn from a range of countries including the USA, USSR, Finland, Australia, Canada, New Zealand and Britain.[15] Only three studies looking at a wide range of children have so far actually been carried out in this country, but they all tend to confirm that children in Britain are also aware of the nuclear threat and many say they are worried by it.[16] However, Barbara Tizard has rightly expressed doubts as to whether unsocial teenage behaviour is necessarily the result of such worries. Thus whilst: "it does seem reasonable to assume...that the shadow of the nuclear threat has a serious and malignant effect on the young...it is difficult to disentangle from those resulting from other malign influences in our own society - unemployment, a daily diet of TV violence, the spread of drug abuse and so on."[17]

For the classroom teacher who decides to teach about nuclear issues, however, some difficult questions remain. If some young people are deeply worried, as the research suggests, how should we deal with their:

- fear of annihilation at any time?
- expectations of an early death?
- feelings of powerlessness?
- feelings of cynicism and despair?

What suggestions have been made to help teachers deal with the dilemmas posed by questions such as these?

2. TEACHING APPROACHES

Some recent suggestions

Given the potential dilemmas that may be encountered

if one wishes to teach about nuclear issues it is instructive to consider the suggestions made by educators with an interest in this field.

Firstly, it needs to be noted that good reference materials are not always easy for classroom teachers to find. They are more likely to be from America than Britain, they tend to be in journal rather than book form. There are, of course, plentiful materials on nuclear issues per se but our concern here is with ideas on teaching about such issues.

Secondly, it needs to be said that proponents of nuclear deterrence seem to have had little constructive to say to teachers until recently about what they might be doing in the classroom.[18] Most critical and useful thinking has come from those who, for various reasons, have doubts about the continuing viability of the nuclear arms race.

This section draws in particular on five published sources which reflect some of the ideas recently being suggested by educators. The publications are:

- Teachers College Record, 84(1), 1982 (special issue)
- Social Education, November/December 1983 (special issue)
- Lessons Before Midnight, Bedford Way Papers No. 19, University of London Institute of Education/ Heinemann, 1984
- Education and the Threat of Nuclear War, Zars,B. et al., Harvard Educational Reviw, 1985
- World Studies Journal, 5(4), 1985; "Issues in nuclear education" by Jerry Wellington

The comments and suggestions made by contributors to the above publications fall broadly into three categories i) those to do with an educational rationale for nuclear education; ii) those to do with the consequent problems arising from this; iii) those to do with classroom practice.

A range of reasons are given for the need to teach about nuclear issues. Thus whilst in their preface the editors of Education and the Threat of Nuclear War note that

"much of what is currently happening in classrooms consists of brave, isolated efforts by individual teachers who feel compelled to address the issue in whatever ways they can" they also observe "that this is sometimes because students themselves are raising the subject."[19]

Douglas Sloan, in his preface to Teachers College Record, suggests that nuclear issues should be a key component in peace and disarmament education and this is, of course, true.[20] However, nuclear issues can be taught about in a range of subject contexts, for example from Religious Education and Social Studies to History and Science, and many schools may choose not to use the term education for peace at all. More specifically, Barbara Tizard identifies the two critical components of education on nuclear issues as: increasing student's knowledge about nuclear weapons and strategies in order to arouse appropriate levels of concern about their inherent dangers.[21]

Richard Barnet, however, argues that:

> The teaching profession has failed to prepare young people to live in the nuclear age. We do not have courses that explain the most important fact of our era - that ours is the first generation in human history with the theoretical capability to end human history.[22]

He goes on to claim that the few existing courses that look at nuclear issues are inadequate on two counts. First, that they emphasise the complexity of the arms race rather than helping students demystify it by asking "essential simplifying questions." Second that "they teach nuclear strategy as if it were a scholastic philosophy" without any questioning of the basic assumptions on which it is founded.

Eric Markusen and John Harris argue that education has a critical role to play in reducing the threat of nuclear war and draw disturbing parallels "between the exploitation of education in Nazi Germany to rationalise and implement mass murder" and the way in which education in the United States implicitly supports the nuclear arms race and therefore the possibility of mass killings on an even greater scale.[23] In particular they express concern about the need for clear and open debate about nuclear premises and assumptions in a democratic society.

Most commentators are also quite quick to point out the difficulties and problems raised in teaching about nuclear issues, not least because they are politically controversial in their own right prior to any consideration of their location in the school curriculum. Certainly schools need to be one place where we also examine the social, economic, cultural and political contexts which have produced and maintain the nuclear arms race. It is insufficient therefore to merely debate the views of differing political groups.

John Mack, an American psychiatrist, thus focusses on what he calls 'resistances to knowing':

> I maintain that the controversy surrounding nuclear education is illustrative of the conflicts which beset society as a whole with regard to nuclear weapons and nuclear arms policy; it reflects the resistances to confronting the nuclear problem that operate throughout the whole community. As a result of these resistances, decisions concerning nuclear weapons have been left to a small group composed largely of men thought to be qualified on the basis of their possession of technical knowledge and a limited number of government and military officials whom they hold in their thrall.[24]

Mack identifies both individual and collective resistances to critically analysing the assumption behind the nuclear arms race. The individual resistances are those already referred to in Figure 3 on page 9. Collective resistances are those which "have the explicit or tacit support of the community. They are a product of the way a nation and its institutions organise their basic assumptions about the world. These assumptions are held in conformity, what the society regards as its essential political and economic purposes, values and ideologies."[25]

This has clear implications for nuclear education in schools, Mack argues, because school systems will often resist educational materials that raise challenging questions about the basic assumptions of society. Thus when critics argue against nuclear education it may well be because they fear the results of the very "balanced" teaching that they advocate. This would need to include government perspectives on deterrence and the Soviet threat together with:

available facts about the Soviet political system, some account of how the Soviet leadership and people see the nuclear danger, their view of security, and their fears of U.S. and Chinese military power. No amount of emphasis upon unacceptable behaviour of the Soviet regime, including the Gulags and "the psychiatric tortures", can prevent...young people from discovering that there is a Soviet point of view, that the Russians do fear nuclear war, and, most important, that our prevailing nationalistic ideology tends to stereotype negatively the Soviet Union.[26]

A conceptual framework for teaching about nuclear weapons is set out in one of the articles in Social Education. Six fundamental concepts are identified by the authors as essential to the study of issues relating to nuclear weapons.[27] See Figure 5 below.

Figure 5

FUNDAMENTAL CONCEPTS FOR TEACHING ABOUT NUCLEAR WEAPONS

1. The New Fact: the possibility of the destruction of the planet

   Whilst this is possible it is not inevitable, a fact which all students and citizens have a right to know.

2. Scale: the destructive capacity of nuclear weapons

   The tremendous quantitive and qualitative differences between conventional and nuclear weapons.

3. Nuclear Security: more than military security

   Military security is only one aspect of national security which also includes economic, social, cultural and ethical value factors.

4. Deterrence v. arms control and disarmament

   Understanding the theory of deterrence and also the distinction between arms control and different forms of disarmament.

5. The global scope of the problem

   The need to look at the multilateral perspective of all the nations affected rather than the bilateral perspective of the superpowers alone.

6. Alternative security policies

   The exploration of alternative possibilities including non-nuclear options and civilian defence.

This is one of the few articles in the sources reviewed here which actually begins to look at possible curriculum frameworks for nuclear education.* In the original article the six concepts are elaborated on in more detail. Whilst one may want to challenge the choice of some of the concepts, they can provide a valuable starting point for discussion at the stage of curriculum planning.

Finally, Jerry Wellington's article is one of the few available British contributions to this debate. He sets nuclear education firmly within the context of teaching about controversial issues and looks at what counts as such an issue, why one should teach about them, problems to do with neutrality and balance, and questions of content level and age range. In particular he stresses the role that science education has to play in nuclear education. Thus in six or eight double science lessons one could look at:

> A sketch of the history from 1938 to the present day: the first A-bomb test in New Mexico, the explosions of Hiroshima and Nagasaki, the idea of fusion and the H-bomb, the growing awareness of radioactive fallout, and an outline of recent developments in both weapons and energy technology.[28]

The advantage of this article is that it is short, easily available and provides a good summary of some basic concerns. For more detailed examples of classroom practice we need to consider some of the actual teaching materials that are available.

---

*Teachers should also obtain Roy Wake's notes, just received, entitled Nato Worksheets 11-14 Year Olds, Teaching Notes and Bibliographies, available from the British Atlantic Committee.

Some materials

The largest and most comprehensive manuals are those from the United States. Much of the material in Britain is in the form of pupil textbooks on the arms race.

Four items are described here and these are:

- Choices: A Unit on Conflict and Nuclear War,

  Union of Concerned Scientists with Massachusetts Teachers Association and National Education Association, 1983.

- Dialogue: A Teaching Guide to Nuclear Issues,
  Educators for Social Responsibility, 1982

- Nuclear Weapons and Warfare,
  Adam Suddaby, Longman, 1982

- Nuclear Issues in Education: A Teaching Guide,
  Newcastle-upon-Tyne Education Committee, 1985

Choices is a comprehensive teacher's guide set out in the form of ten detailed lesson plans with appendices on resources and necessary background information. It is designed to give students the knowledge and skills needed to understand the nuclear debate so that their response to it is not one of fear and despair. It is not intended to promote particular political positions.

The lessons are intended for junior high school students (i.e. age 12 to 16) and each is described in detail with reference to purpose, material and procedures. Work-sheets, games and other materials are included. The ten lessons are described as follows:

Lesson 1 introduces students to the effects of the first atomic bomb. Students examine the reasons for studying nuclear war and see that their participation with others can help prevent nuclear war.

Lesson 2 begins with an explanation of conflict. Before studying war - the most extreme form of conflict - students examine conflict on a personal level. Both sources and means of resolving conflict are explored.

Lesson 3 builds on the understanding of conflict gained

in the previous lesson. Communication, negotiation, and compromise are introduced as means of resolving personal and group conflict. Games help illustrate the complexity of conflict resolution.

Lesson 4 takes conflict to its worst end point - nuclear war. Students study the weapons of history and recognize that nuclear warfare represents a leap beyond previous weaponry. The chemical and biological effects of nuclear war are introduced.

Lesson 5 deals with the arms race, escalation, and the economic consequences of building nuclear weapons.

Lesson 6 elicits students' feelings about Soviet-US relations, while also examining national foreign policy goals. An exercise on federal budget priorities is included.

Lesson 7 examines ways of reducing the risk of nuclear war among the superpowers. Several future national security options are discussed.

Lesson 8 encourages students to develop their own opinions apart from the many influences in their lives.

Lesson 9 emphasizes the use of imagination in considering alternative futures.

Lesson 10 aims to help students translate their knowledge into action.

It is interesting to note that this publication was the centre of considerable controversy in the United States when it was published, particularly in relation to question of balance and bias.[29] Certainly it encourages a critical stance over nuclear issues and the consideration of alternative security options. As far as the critics are concerned it did not give enough stress to the nature of the Soviet threat and to U.S. government policies.

More pertinent might be the comment that jumping from nuclear war to personal conflicts and back again oversimplifies the issue of superpower rivalry. Naturally students need to know about conflict resolution and communication skills and it is quite appropriate that they should be included

here. There needs, however, to be more discussion over what useful parallels can be drawn between personal conflict and conflict on a more global scale.

The unit is a good example of recent materials designed to open up the the debate about nuclear issues in school. It contains a lot of useful ideas and information and much thought has gone into its compilation. Inevitably, as indicated above, it still leaves some questions unanswered.

Dialogue is also a quite detailed teacher's guide and resource book which aims to develop students' critical thinking and offer ways of dealing with nuclear fears when they arise. It offers a range of starting points and classroom activities from kindergarten to grade 12 (i.e. ages 5 to 12).

The opening section looks at what the research tells us about children's fears and about ways of working with teachers, administrators, parents and students in organising a day on nuclear education. There are five sections on practical classroom ideas dealing with different age ranges. Both stress the developmental considerations that need to be taken into account and then offer a variety of activities for exploring issues to do with war, peace, conflict and nuclear fears in an appropriate way.

Three sections are devoted to the secondary school context. The first looks again at developmental issues and then offers a range of starting points for looking at nuclear issues. The second focusses on developing the skills needed to think critically about nuclear matters. The third offers a variety of classroom activities and there is a wealth of valuable practical materials here.

In particular it is good to see a sub-section on assessing divergent viewpoints in which, amongst other things, a series of steps are set up to help students answer the question 'How I do know what to believe?' Each step is appropriately elaborated and they are:

i) examine underlying assumptions;
ii) determine the objectivity of the presenter;
iii) determine the values of the presenter;
iv) determine the level of the appeal;
v) examine the evidence;
vi) ask: what is not being said?

Dialogue thus offers a broader set of alternatives than Choices, although it does not contain detailed lesson plans as such. If offers suggestions for a much wider age range and gives a supporting rationale.

By contrast to the two American publications Nuclear Weapons and Warfare contains no notes or advice to teachers nor indeed any activities for students. It is a collection of seven booklets for use with the 16-19 age range each dealing with one particular aspect of the nuclear debate. These are:

- Hiroshima and the effects of nuclear war
- The nuclear arms race 1: the weapons
- The nuclear arms race 2: proliferation and disarmament
- Deterrence and defence in nuclear war
- European nuclear issues
- Nuclear issues and Great Britain
- American nuclear issues

The publisher describes the booklets as "a fully comprehensive, neutral survey of the facts and the issues surrounding the development and spread of nuclear weapons." They are well illustrated with photographs, cartoons, diagrams and statistics and draw on a variety of original sources to illustrate the range of opinions on government defence policy. Opposing views are often set out on opposite pages for ease of comparison.

These materials probably exemplify the "balanced" approach so much requested by critics. They put considerable onus on the teacher, however, in providing appropriate active learning experiences within which such resources can be used. Neither do they draw the teacher's attention to any of the potential dilemmas i.e. about student's fears, or the skills of critical judgement that need to be consciously and appropriately developed to deal with this field.

Nuclear Issues in Education: A Teaching Guide differs again in format to the other three publications. It arose our of an LEA working party set up to "encourage the balanced presentation and discussion of the nuclear issue in educational establishments and to produce teaching materials for use in Newcastle-upon-Tyne schools."

It begins with a section on teaching techniques based on active learning approaches. Several are described briefly, but without reference to specific content. The two main sections are on nuclear weapons and on nuclear power. Specific topics are identified for each section and a brief review of selected resources given together with also brief descriptions of suggested teaching approaches.

The topics on nuclear weapons are:

- How things began
- The first bombs are dropped
- Nuclear weapons and the arms race
- Deterrence and disarmament
- What price nuclear weapons?
- The effects of a nuclear explosion
- Can we survive a nuclear war?
- The search for peace

On nuclear power they are:

- Radiation and the uses of radio isotopes
- The energy problems
- Nuclear power stations
- Fast breeder reactors
- Nuclear waste
- The environment
- The expansion of nuclear power

The publication, in loose-leaf file format, thus identifies specific topics to teach and the resources which teachers will need to look at. It points towards the need for active learning but does not spell out the possible difficulties and dilemmas that the subject matter may provoke for students and teachers. Its teaching suggestions are not as comprehensive as in the American materials.

The four publications for teachers described here differ considerably in their format, aims and approaches. Choices provides a series of detailed lesson plans with supporting resources for use with secondary pupils; Dialogue provides a wide range of classroom activities from infant to secondary with discussion of the developmental context and some of the dilemmas raised by this; Nuclear Weapons and Warfare provide comprehensive information and details of 'for

and against' arguments but with no notes for teachers or activities for students; Nuclear Issues in Education briefly identifies resources, topics and teaching ideas for secondary students, it does not discuss any of the difficulties that may arise for teachers.

Assessing approaches

In assessing the choice of approaches for teaching about nuclear issues it is possible to identify a range of options. In part one's choice will depend on what one identifies as the educational task and this clearly relates to an individual's underlying assumptions about the purposes of schooling. Conservative, liberal, and radical perspectives will thus offer quite different priorities in relation to nuclear education. This spectrum is not specifically about party political positions, although that may be relevant here, but rather about broad value assumptions and positions.

Thus a conservative perspective on nuclear education would probably see the task as one of explaining the need for nuclear deterrence and current defence policies; it would stress respect for political, military and technological authority; it would also argue that suggestions concerning students' nuclear fears are greatly overplayed and/or the result of activists deliberately setting out to create fear.

A liberal perspective would probably stress the need to understand the different arguments about defence and deterrence; it would put great emphasis on the need to exercise critical judgement in assessing these arguments; there would be the suggestion that all problems can be rationally resolved.

A radical perspective would pose fundamental questions about the nature of aggression, the need for enemies and the nature of the arms race; it would seek to expose vested interests and hidden power structures and wish to promote social and political change; it may see the problem (after Gandhi) as a choice between extinction and non-violence.

If we take these broad perspectives a step further one is able to identify six possible approaches to nuclear education. See Figure 6.

Figure 6

SIX APPROACHES TO NUCLEAR EDUCATION

1. Not dealt with

   For various reasons nuclear issues might not be dealt with at all in secondary school. This could be by default, because no one has ever really thought about it; it could be because it appears too complex and difficult to handle or because of the teacher's own fears; it could be because the topic is considered too controversial and political. The end result is ignorance.

2. Government stance

   Nuclear issues may be dealt with by using materials and speakers from the Ministry of Defence and the Foreign and Commonwealth Office who expound the government perspective on defence, nuclear deterrence and NATO. If only this is taught the end result is indoctrination.

3. Unilateralist stance

   Nuclear issues may be dealt with by inviting in speakers from CND, the Religious Society of Friends or other groups who generally take an anti-nuclear stance. If these are the only viewpoints students meet the end result is indoctrination.

4. Teaching the facts

   Students learn all the major facts about the arms race, about its history, different sorts of nuclear weapons, plans for civil defence and other key issues. The end result of this is to impart information.

5. Understanding the arguments

   Students are exposed to the major debates and viewpoints concerning defence and deterrence. They look at the arguments used by different political parties and pressure groups; the debate over the bombing of Hiroshima and Nagasaki; Soviet and American perspectives of each other. The end result of this is to develop skills of evaluation.

6. Holistic reassessment

This requires facing up to our own psychology of denial and the fears of our students. It involves working with hearts as well as minds in order to face up to the possibilities of extinction and yet to liberate energies for personal, social and political change. The end result of this should be empowerment.

These six approaches are not, of course, mutually exclusive. They may occur as described in Figure 6 in school but also in various permutations. The critics argue that the unilateralist stance is one of the most common ones. Her Majesty's Inspectorate, however, report little evidence of this.[30]

Not dealing with the issue at all is probably a quite common approach. This is, of course, bias by omission. Giving government or unilateralist stances on their own, as if they are the only viewpoint possible, clearly falls into the category of indoctrination. Put together they go quite a way towards understanding some of the main arguments. Attempts to teach only the facts, whilst important, fall short in any true educational sense because they fail to explore responses to the moral and ethical dilemmas raised by the nuclear debate.

A combination of teaching the facts and understanding the arguments make a major contribution to nuclear education. This is probably the best that we can currently expect. The American materials go an important step further, however, in identifying nuclear numbing as a key issue. Dialogue, in particular, looks at ways of helping students talk about their fears and also of taking more control over their own lives in terms of learning skills of conflict resolution and of taking action. In this lies the beginning of empowerment and, given that the nuclear issue is qualitatively and quantitatively different from all others, we do need to move beyond the facts and the arguments, vital though they are, if the nuclear threat to this planet is to be successfully challenged.

3. WAYS FORWARD

Clarifying the task

Given the questions raised by nuclear education in this paper the way forward has to involve further consideration of the approach labelled 'holistic reassessment'. Such an approach requires that we set the dilemmas of nuclear education in the broadest social and cultural context. Thus:

> the nuclear arms race poses the greatest ever threat to our survival. But it is only an extreme part of the violence that is inherent in our society. Militarism, economic exploitation, sexism, racism and the devastation of the environment are fundamentally related. We must work to remove the causes of violence that are rooted in the structure of our society.[31]

We need therefore, to think not just about how to tackle nuclear issues per se but how to set them in the broader context of teaching about disarmament. Disarmament education is often looked upon as one aspect of education for peace i.e. that part which focusses on the need for, and proposals for, disarmament at various levels.

"It aims at teaching how to think about disarmament rather than what to think about it. It should therefore be problem-centred so as to develop the analytical and critical capacity to examine and evaluate practical steps towards the reduction of arms and the elimination of war as an accepted international practice."[32]

Betty Reardon, in a very perceptive study, has analysed the major obstacles to disarmament education.[33] She identifies them as political, perceptual and pedagogical and they are summarised in Figure 7.

Figure 7

OBSTACLES TO DISARMAMENT EDUCATION

1. Political obstacles

   The international system which recognises the right of all nations to use armed force in pursuit of their interests.

2. Perceptual obstacles

Fear:	Of the economic consequences of disarmament Of 'the enemy' and of being defenceless Of the unknown i.e. a disarmed world
Militarism:	The equation of social order with military authority Not supporting the military = lack of patriotism; treason
Ignorance:	Insufficient information to envisage alternatives

3. Pedagogical obstacles

Affective:	Dealing with fear Dealing with hatred Combatting prejudice
Cognitive:	Lack and disregard of information The world as a political & ecological system Paucity of information on alternatives
Primary:	Socialisation into superiority of own nation Competition seen as essential for survival Stress on national loyalty Impact on the media
Secondary:	Reinforcement of nationalism Pre-military service Ethnocentric curriculum

This is quite a formidable list of obstacles but extremely pertinent if we wish to understand the difficulties for young people, and adults, in conceptualising a disarmed world. They are salutory reminders of the blocks we face to thinking creatively about disarmament. In particular teachers have a responsibility for being aware of, and working to overcome, some of the perceptual and pedagogical obstacles.

Dorothy Rowe has paid particular attention to the question of whether we can live without enemies.[34] She argues that in our very early years we internalise a whole series of personal rules about fear, anger and love, and that if we learn to experience ourselves as bad we therefore often

feel weak, frightened or in danger. If this is part of our conscious, or subconscious, worldview other people are seen as not to be trusted. The world is therefore full of potential enemies. Believing that we are good and sensible whilst only others are bad and dangerous is much easier to do than to try and understand the negatives, the enemy, we have contructed within.

Thus if we experience ourselves as bad we cannot live at ease with others. People we do not understand we may therefore fear and, if we fear them long enough, we may come to hate them. We define the group that we're in in terms of perceived contrasts: like us/not like us, but this involves both objective and subjective differences. Objective differences are those which are present in reality, subjective differences are those we project onto others.

Thus whilst it is quite appropriate to identify individuals and groups as the Stranger, in order to more clearly define ourselves i.e. the Stranger is that which is different, it does not logically follow that the Stranger is dangerous i.e. an enemy. This distinction is a critical one which many politicians and others fail to make. Thus those who are culturally and politically different are all too easily categorised as 'the enemy' too. That this can change quite rapidly can be shown by reference to both the Soviet Union and China. Whilst the Soviet Union was portrayed as a loyal ally in the war, they became 'the enemy' soon afterwards. Similarly China was 'the enemy' in the eyes of America until a reversal of foreign policy made this inappropriate.

When a group believes that there is a dangerous Stranger threatening to attack them a sense of group cohesion is created amongst members which offers them self-esteem, comfort and security. The more we can fear the Stranger the more cohesive is the group. It may in fact be much more appropriate to look for that esteem and security in other, less damaging ways, rather than the group projecting its dark side out onto another group or nation. Equally pertinent here is some consideration of the nature of sex-role socialisation and militarism. Thus most societies give permission "to men to indulge aggressive impulses

while prohibiting these impulses in women, and the encouragement of men to be competitive, even to the point of using violence to achieve success, while discouraging competitiveness in women."[35]

Most boys are therefore taught to repress their emotional life and to deny the feminine side of their nature. Learning to trust only logic and the intellect, aggression and violence are one of the few ways for men to convey their feelings. To be a boy or a man is thus about the heroic struggle for mastery and superiority. This mastery may be over animals, nature, women or other groups. Subjugation of someone or something is seen as proof of manhood. It is men who plan, train for, and conduct wars and women are generally the victims of wars. Such behaviour socialisation is, of course, suported by comics, videos, war toys, and many programmes on T.V. It should not be surprising perhaps that half of the world's scientists, being largely male, are engaged in military research and development. The nuclear arms race is thus basically a male construction.[36]

Militarism can be seen as one outcome of both defining the Stranger as the enemy and of current gender socialisation. It is a belief system based on the assumption that human beings are by nature competitive, aggressive and violent and that therefore a secure and orderly society needs to be based on authoritarian and military values and practices. Such a belief system seems to underly most contemporary political systems and as such provides legitimation both for war as a perceived means of settling disputes and the arms race as a sensible response to outside danger. Perhaps peace educators should be giving as much attention to militarism and its ramifications as others are to racism and sexism.

Some implications

The implications of nuclear education, if we are concerned with holistic reassessment, are various. Four are identified here and they relate to: i) talking to children about their nuclear fears; ii) dealing with adult fears; iii) the consequent needs expressed by teachers; iv) the questions raised for teaching and learning in the classroom.

Some of the main issues we need to be aware of when talking to children about nuclear war have been identified by the Van Ornums.[37] They have looked in detail at how adults can talk to children of different ages and at different stages of emotional development about nuclear issues. Some of the main findings are outlined in Figure 8.

Figure 8

DISCUSSING FEARS WITH CHILDREN

Effective adult child communication over nuclear fears appears to occur only after adults have begun to:

1. Face up themselves to their own fears.
2. Comprehend the finality of nuclear war.
3. Be able to say "I don't know" gracefully to themselves and to children.
4. Let go of the need to "make everything nice" for children.
5. Acknowledge what may often be their own feelings of helplessness.
6. Create support networks with other adults for dealing with their own fears.
7. Help children to verbalise their own thoughts and feelings.
8. Help children to feel safe despite their own adult doubts.
9. Live a normal life with their children in spite of their fears.

This checklist indicates that open, frank and loving communication is essential if we are really to help children. It is also an urgent reminder that we need to consider how to deal with our own nuclear numbing. One interesting and useful organisation that runs workshops in this field is Interhelp[38] which draws extensively on the work of Joanna Macy. From her own extensive experience she has identified five principles for dealing with what she calls 'nuclear despair and empowerment.' [39] See Figure 9.

Figure 9

NUCLEAR DESPAIR AND EMPOWERMENT

1. Feelings of pain for our world are natural and healthy

   Confronted with widespread suffering and threats of global disaster, responses of fear, anger, grief and guilt are normal. They are a measure of our humanity.

2. This pain is morbid only if denied

   If we disown our pain it becomes disfunctional. The cost of repression is numbness, isolation, anger, suspicion. Despair like any emotion can be used.

3. Information alone is not enough

   Terrifying information can only make things worse. Such information must be processed on psychological and emotional levels.

4. Unblocking repressed feelings releases energy, clears the mind

   When repressed material is brought to the surface and released, energy is released as well and life comes into clearer focus e.g. the cathartic role of art, ritual and play.

5. Unblocking our pain for the world reconnects us with the larger web of life

   Moving beyond the pain can reconnect us to the joy and power of the web of which we are all part. From liberation and empowerment can come a 'second chance at meaning.'

Clearly the work here is enormous. In terms of nuclear education the crucial question might be 'What does this look like in terms of working with teachers and students?' This may be the real frontier for nuclear education in the 1980s and 90s. After a workshop on teaching about nuclear issues one group of teachers identified their needs in relation to nuclear education as follows:

- time for us to reflect and think about what we feel
- identifying ways of dealing with our own avoidance mechanisms

- opportunities to try out activities on ourselves first in order to check their usefulness
- a need to know the facts and how to deal with the emotional outcomes
- knowing how to create opportunities for young people to express their fears openly
- being able to value oneself and to value the future
- more support from senior staff and from agencies outside the school

Such requests suggest the need for a carefully prepared programme of in-service education. This could perhaps best be pioneered by the several LEAs which already have guidelines on, and experience in, education for peace. Such in-service education will also need to look at underlying questions about teaching and learning, classroom climate and school ethos. Both education for peace and world studies, put great stress on process and there are various practical publications for teachers which clarify the tasks here.[40]

Beth Wilson highlights some of the dilemmas when she writes:

> Given the current national political climate and the prevailing social structure of schooling in which students have relatively little decision making power, nuclear-issues curricula that stress empowerment and participation may often do so in the fact of contradictory messages. Explicit goals of increased individual involvement and action may be undermined by - or at least compete with - the tacit reality that many school decisions are out of the hands of students.[41]

Similarly Jean Ruddock and Maurice Plaskow have argued that:

> The powerful still do not favour cultivation among the lower orders of the scepticism and critical intelligence that is valued among their betters. It is for that reason that they point backwards to the basics in the face of the potential and exciting curricula in literacy and numeracy and knowledge to be found in the recent curriculum movement...[42]

Thus if we wish students to exercise critical judgement, to form their own opinions and to take a stand on issues, we may have to question the nature of much authority and routine in school. In essence this requires the active approach to learning currently advocated by Her Majesty's Inspectorate,[43] rather than the passive learning skills to be found in many of our classrooms.

In summary

The main points made in this paper concerning nuclear education can be summarised as follows:

1. The facts alone are not enough and may indeed be counter-productive.
2. Understanding all the main arguments and viewpoints and how to evaluate them is essential.
3. Adults must give truthful information and emotional support as well as being open about their own hopes and fears.
4. Nuclear isses need to be set in the broader context of disarmament education.
5. This needs to include reference both to gender socialisation and to the nature of militarism.
6. We need to become aware of our own deep ways of handling fear and anger.
7. We need to reconsider the impact of 'normal' gender socialisation on children.
8. We need to re-assess the potential and actual impact of our own teaching/learning styles.
9. Teaching nuclear issues is essential if young citizens are to be responsibly informed in a democratic society.

This field is thus complex and controversial. What this paper has set out to do is to disentangle some of the threads, to raise pertinent questions and to assess possible approaches. It is hoped that it will inform the detail of classroom practice and begin to make it more effective.

4. SOME KEY RESOURCES: For Teachers

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The Centre for Peace Studies was established in 1980 to provide a national advice and information service on all issues relating to education for peace.

Occasional Paper No. 2

Culture Race, and Peace: Tasks and Tensions in the Classroom,
Robin Richardson

Occasional Paper No. 3

Education As If People Really Mattered
Patrick Whitaker

Occasional Paper No. 4

Studying Peace: The Educational Rationale
David Hicks

Occasional Paper No. 5

Futures Education: Why We Need to Teach for Tomorrow
Richard Slaughter

Occasional Paper No. 6

Obstacles to Disarmament Education
Betty Reardon

Occasional Paper No. 8

Children and the Threat of Nuclear War
Ruth Davies

Occasional Paper No. 9

Education for Peace: Issues, Dilemmas and Alternatives
David Hicks

Occasional Paper No. 11

Children and Nuclear War: A Survey
Ruth Davies

Details of these and other publications can be obtained from the Information Officer, Centre for Peace Studies, S. Martin's College, Lancaster LA1 3JD